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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/237,229	01/26/1999	KI-SANG KIM	SEC.0584	9480

7590 04/15/2002

JONES & VOLENTINE  
12200 SUNRISE VALLEY DRIVE  
SUITE 150  
RESTON, VA 20191

EXAMINER

LUND, JEFFRIE ROBERT

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 04/15/2002

#18

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/237,229

Applicant(s)

KIM ET AL.

Examiner

Jeffrie R. Lund

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-22 and 24-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-22 and 24-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Response to Amendment***

1. In view of the final office action and the amendment filed August 15, 2001 the finality of that action is withdrawn, and the amendment has been entered.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 13, 16, 26, and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 13, 26 and 32 all use the limitation "vacuum-absorb". It is not clear what this means. The examiner believes the applicant is referring to vacuum chucks, which holds the wafer. The examiner recommends changing the term "vacuum-absorb" to vacuum chuck.

√ Claim 16 recites the limitation "the vertical driving part" in line 2. There is insufficient antecedent basis for this limitation in the claim. The examiner suggests amending claim 16 to depend on claim 12.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

~~5.~~ Claims 1, 7, 9-12, 15, and 17-19 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kato et al, 5,685,684.

Kato et al teaches the claimed invention in figure 3 and throughout the specification.

6. Claims 1, 2, 7, 9-12, 14-22, and 29-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Yonemitsu et al, 5,788,447.

Yonemitsu et al teaches a substrate processing apparatus that includes: a cassette stage 11; a transfer path adjacent to the cassette stage at atmospheric pressure; a plurality of processing chambers 701 aligned in a plurality of layers parallel to and beside the transfer path; a transfer mechanism 20 capable of vertical/horizontal reciprocal movement installed in the transfer path for loading and unloading the wafers stacked on the cassette stage; and a load lock chamber 30 connected to one side of the processing chambers via transfer chamber 501, the load lock chamber serving as a stand-by area for the wafers. (Entire document)

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7. Claims 1, 2, 7, 9-12, 14-16, 18-22, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Suda et al, 5,685,684.

Suda et al teaches a substrate processing apparatus that includes: a cassette stage 42; a transfer path adjacent to the cassette stage at atmospheric pressure; a plurality of processing chambers 56 aligned in a plurality of layers parallel to and beside the transfer path; a transfer mechanism 20 capable of vertical/horizontal reciprocal movement installed in the transfer path for loading and unloading the wafers stacked on the cassette stage; and a load lock chamber 52 connected to one side of the processing chambers via transfer chamber 54, the load lock chamber serving as a stand-by area for the wafers. (Entire document)

8. Claims 1, 7, 9-11, 15, and 17-19 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Soraoka et al, 6,188,935.

Soraoka et al teaches the claimed invention in figure 3 and throughout the specification.

9. Claims 1, 7-11, 14, 15, 18, and 19 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Tabrizi et al, 6,315,512.

Tabrizi et al teaches the claimed invention in figure 5 and throughout the specification.

10. Claims 1, 3, 5, 7-12, 15, 16, 18, and 19 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Park, 6,188,935.

Park teaches the claimed invention in figure 3 and throughout the specification.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 5, 6, 13, 24-28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al or Suda et al in view of Maydan et al, 4,951,601.

Yonemitsu et al was discussed above, and includes a load lock chamber 300; gate valves 91-93; and a transfer apparatus 60 that has a plurality of wafer support arms 68 in a wafer transfer chamber 501.

Suda et al was discussed above and includes a load lock chamber 52; gate valves 62, 64, 66; and a transfer apparatus 80 that has a plurality of wafer support arms 88a, 88b in a wafer transfer chamber 54.

Yonemitsu et al and Suda et al both differ from the present invention in that they do not teach that the load lock includes a transfer apparatus.

Maydan et al teaches a load lock chamber 14 that includes a transfer apparatus 80.

The motivation for combining the load lock chamber 300 or 52 with the transfer chamber 501 or 54 by eliminating the gate valve 92 or 64 is to simplify the apparatus of Yonemitsu et al or Suda et al as taught by Maydan et al. Furthermore, it has been held that the omission of an element and its function is obvious if the function of the element

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is not desired (see *In re Larson*, 340 F.2d 965, 144 USPQ 347 (CCPA 1965); *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975))

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the load lock and transfer cambers of Yonemitsu et al or Suda et al as taught by Maydan et al.

### ***Response to Arguments***

13. Applicant's arguments with respect to claim 1-3, 5-22, and 24-32 have been considered but are moot in view of the new ground(s) of rejection.

In regard to Maydan et al, all former rejections based on Maydan et al have been dropped. Maydan et al now is used only to teach a load lock chamber with a transfer apparatus. Maydan et al clearly teaches a robot 80 located in the load lock 14.

In regard to the argument that Yonemitsu et al does not teach a load lock chamber connected to one side of the processing chamber but teaches a load lock chamber connected to a transfer module 501, the examiner disagrees. While it is true that the load lock 300 is connected to the transfer module 501, the term "connected to" is a broad term and includes intermediate structures or items, which connect the two items or chambers. In the present case the load lock chamber 30 is connected to the processing chamber via the transfer module 501. Yonemitsu et al clearly teaches a cassette stage 11 connected to the load lock 30 via the transfer path that is located between the cassette stages 11 and the load locks 300, and the load locks 300 are connected to the processing chambers 701 via the transfer chamber 501.

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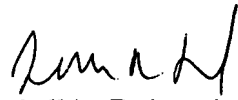
***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention. The cited art contains patents that could be used to reject the claims under 35 USC § 102 or 103. These rejections have not been made because they do not provide any additional or different teachings, and if they were applied, would have resulted in an undue multiplication or references. (See MPEP 707.07(g))

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (703) 308-1796. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Jeffrie R. Lund  
Primary Examiner  
Art Unit 1763

JRL  
April 11, 2002